

**Variables and Expressions**

Simplify each numerical expression.

1.  $6 \div 2 + 1 \times 4$  \_\_\_\_\_
2.  $24 + 0 \div 4 - 10 \times 2$  \_\_\_\_\_
3.  $4 + 8 \times 4 \div 2 - 6$  \_\_\_\_\_
4.  $2^4 + 3^3 - 5^2$  \_\_\_\_\_
5.  $0.75 \times 2 + 1 \div 2 - 0.28$  \_\_\_\_\_
6.  $9[5 + (6 - 2) \times 5]$  \_\_\_\_\_

Evaluate each expression using the values given for each variable.

7.  $3a + 5 + 4a - 6 + a$ ;  $a = -3$  \_\_\_\_\_
8.  $6x - 1 + 3x - 2 - 4x$ ;  $x = 4$  \_\_\_\_\_
9.  $6y^2 - 5y + 3$ ;  $y = -5$  \_\_\_\_\_
10.  $17r - 5r^2 + 2r^3$ ;  $r = -1$  \_\_\_\_\_
11.  $|3x| - |x| + |x - 4|$ ;  $x = 5$  \_\_\_\_\_
12.  $|5 - 2y| + |3y - 4|$ ;  $y = -4$  \_\_\_\_\_
13.  $5x^2 - 2xy + y^2$ ;  $x = -2$ ,  $y = 3$  \_\_\_\_\_
14.  $7a^2 - 9ab - b^2$ ;  $a = -1$ ,  $b = -4$  \_\_\_\_\_

**Applications**

15. **Meteorology** The expression  $0.4(w + d) + 15$  is used to find the temperature-humidity index, where  $w$  is the wet-bulb temperature and  $d$  is the dry-bulb temperature, both in degrees Fahrenheit. Find the temperature-humidity index when  $w = 72$  and  $d = 83$ . \_\_\_\_\_

**MIXED PRACTICE**

Perform the indicated operation.

16.  $31 + (-83)$  \_\_\_\_\_
17.  $-17 - (46)$  \_\_\_\_\_
18.  $(-15)(-11)$  \_\_\_\_\_
19.  $135 \div (-9)$  \_\_\_\_\_
20.  $(-2)(3)(-4)$  \_\_\_\_\_
21.  $\frac{3}{8} - (-\frac{1}{4})$  \_\_\_\_\_

Simplify.

22.  $8 \times 3 + 6 \times 2$  \_\_\_\_\_
23.  $2[6 + (5 - 3) \times 4]$  \_\_\_\_\_
24.  $150 - 8(2)^5$  \_\_\_\_\_
25.  $8 + 12 \div 4 - 6 \times 2 + 5$  \_\_\_\_\_